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*VIA ELECTRONIC FILING*

Marlene H. Dortch  
Secretary  
Federal Communications Commission  
445 12<sup>th</sup> Street, SW  
Washington, D.C. 20554

**Re: O3b Limited, Notice of *Ex Parte* Presentation  
Use of Spectrum Bands Above 24 GHz For Mobile Radio Services, et al., GN  
Docket No. 14-177, IB Docket Nos. 15-256 & 97-95; RM-11664; WT Docket  
No. 10-112**

Dear Ms. Dortch:

In this letter O3b urges the Commission to adopt performance requirements for Upper Microwave Flexible Use (“UMFU”) licensees that effectively promote co-existence with existing Fixed Satellite Service (“FSS”) operations on a co-primary basis. Appropriate performance requirements would align the licensing regime adopted in this rulemaking with the Commission’s stated priority in this and other proceedings to maximize shared use of spectrum by multiple services in the 27.5-28.35 GHz (“28 GHz”) band, including FSS. FSS operations in multiple bands have extended high-throughput satellite services to unserved areas, provided broadband services to multiple market segments. More importantly in considering sharing capabilities, FSS has enabled and supported mobile services worldwide. Preserving these FSS capabilities requires that the Commission strike the right balance between maximizing the flexibility for development of new services, and maximizing the ability of FSS to continue to operate and expand high-throughput services in the 28 GHz band.

*Effective Sharing Requires Spectrum Efficiency and Regulatory Certainty.* In recent weeks, much attention in this proceeding has been focused on approaches to permitting access to the 28 GHz band by new Upper Microwave Flexible Use (“UMFU”) licensees while continuing to accommodate access by existing and new FSS operators. While commenters disagree about the specifics, most commenters acknowledge that, given the propagation characteristics of the mmW bands, sharing is feasible.<sup>1</sup> The Notice of Proposed Rulemaking itself states that the

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<sup>1</sup> Not all parties agree that sharing in the 28 GHz band is preferred. O3b believes that given the substantial and growing use of the 28 GHz band by satellite operators, the fact that 5G has not yet been deployed, and the risk of UMFU service causing harmful interference to satellites in orbit, 5G can and should be authorized in other mmW bands and not in the 28 GHz band. Should the Commission proceed with adding a mobile allocation to permit 5G in the 28 GHz band, site-licensing of 5G stations on a first-come first-served basis is a feasible and preferable alternative to LMDS license area mobile upgrades and auctions. See Comments of O3b Limited, GN Docket No.

mmW bands “are particularly good candidates for sharing” because their propagation and atmospheric absorption characteristics result in shorter range communications and thus “greater opportunity for frequency reuse without interference.”<sup>2</sup> CTIA acknowledges the short range characteristics of the mmW spectrum, noting that “mmW spectrum is unlikely to deliver extensive coverage in a market but instead will be best suited to providing capacity via small cells and backhaul, particularly in densely populated areas.”<sup>3</sup> Other terrestrial commenters agree. For example, Nextlink Wireless states that UMFU licensees “are likely to provide coverage to relatively small geographic areas.”<sup>4</sup>

Despite the conclusions that terrestrial deployment will be limited to small areas and that the mmW bands are good candidates for sharing,<sup>5</sup> the NPRM proposed to award UMFU licensees with large, exclusive geographic license areas, and to treat FSS as secondary to UMFU in these areas except in limited cases.<sup>6</sup> This is sharing only in a very narrow, very limited sense. Rather than promote sharing to the greatest extent possible, the practical effect would be to minimize opportunities for co-primary use of the 28 GHz band for FSS operations. Without the certainty provided by FSS co-primary status with respect to new mobile applications in the 28 GHz band, the proposed UMFU rules would seriously limit the growth of FSS service in the United States, a result that is not only contrary to the public interest, but is also unnecessary.

In the 28 GHz band, where satellites are already productively employed in providing broadband services and broadband trunking, it is critically important for the Commission to find a way to ensure that UMFU service is introduced in ways that do not diminish the enormous value that FSS operations have built in the last decade, and do not unduly limit future growth of FSS services. O3b and other satellite commenters have explained why FSS needs co-primary status in order to have effective access to the 28 GHz band, and how sharing with planned selective deployment of UMFU is feasible considering existing and planned FSS operations in that band. The Commission can and must do much more to maximize use of the 28 GHz band by adjusting its traditional licensing paradigm of large exclusive license areas to be consistent with the unique characteristics of mmW bands. This is best achieved where the Commission’s UMFU licensing regime acknowledges successful sharing to date between terrestrial licensees and FSS operators at 28 GHz, and respects the regulatory certainty under which FSS operators invested billions to provide national and international high-throughput satellite services, including the priority of FSS over any services the Commission later authorizes.<sup>7</sup>

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14-177 *et al.* at 20-28 (filed Jan. 28, 2016) (“O3b Comments”); Comments of SES Americom, Inc. GN Docket No. 14-177 *et al.* at 3 (filed Jan. 28, 2016); Comments of Viasat Inc. GN Docket No. 14-177 *et al.* at 10-18 (filed Jan. 28, 2016).

<sup>2</sup> *Use of Spectrum Bands Above 24 GHz For Mobile Radio Services, et al.*, Notice of Proposed Rulemaking, GN Docket No. 14-177, *et al.*, FCC 15-138 ¶ 215 (2015) (“NPRM”).

*See* Letter from Scott Bergmann, Vice President, CTIA, to Marlene H. Dortch, GN Docket No. 14-177, *et al.* at 2 (filed May 20, 2016) <sup>4</sup> *See* Letter from Michele Farquhar to Marlene H. Dortch, GN Docket No. 14-177, *et al.* at 2 (filed June 21, 2016).

<sup>4</sup> *See* Letter from Michele Farquhar to Marlene H. Dortch, GN Docket No. 14-177, *et al.* at 2 (filed June 21, 2016).

<sup>5</sup> *See* NPRM at ¶¶ 215.

<sup>6</sup> *See* NPRM at ¶¶ 93-96.

<sup>7</sup> *See Rulemaking to Amend Parts 1, 2, 21, and 25 of the Commission’s Rules to Redesignate the 27.5-29.5 GHz Frequency Band, to Reallocate the 29.5-30.0 GHz Frequency Band, to Establish Rules and Policies for Local*

*Strict Performance Requirements on UMFU Licensees are Essential.* A key obstacle to maximizing shared use of the 28 GHz band is the NPRM’s proposal for large, exclusive geographic license areas, mainly because there will certainly be substantial unused (warehoused) spectrum within large license areas.<sup>8</sup> The Commission’s proposal clearly aims to give UMFU licensees substantial “running room” to figure out whether and how to deploy service in the 28 GHz band. This – rather than any notion that UMFU licensees might actually use all of the areas – seems to be the rationale for granting exclusive rights. Nevertheless, in a band the Commission acknowledges to be a prime candidate for sharing, it should license operators as much as possible to *use* spectrum, and as little as practical to *exclude* other operators and services with which sharing is possible. A rational policy for maximizing sharing would promote rather than preclude a highly productive use – FSS – that is already proven and existing. Therefore if the Commission does proceed to upgrade incumbent LMDS licensees to flexible use UMFU licenses in large license areas, and to downgrade FSS to secondary-to-mobile status, it must impose rational performance requirements on UMFU licensees.

As proposed, the NPRM’s performance requirements are too binary to effectively permit or promote the co-existence of FSS and new UMFU services. A licensee could meet the performance requirements and yet retain the right to exclude FSS from vast geographic areas in which the terrestrial licensee is unlikely ever to deploy service. Or a terrestrial licensee could provide service to areas of high population density but fall short of the performance threshold and lose the entire license, even though it has provided service to all areas that could reasonably benefit from 5G service. Neither of these extremes makes sense.<sup>9</sup> Large area exclusive licenses are simply inappropriate, and wasteful of spectrum, in frequency bands with limited terrestrial propagation.<sup>10</sup>

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*Multipoint Distribution Service and for Fixed Satellite Services*, First Report and Order, CC Docket No. 92-297, FCC 97-311 ¶ 44 (1996) (Services then-treated by rule as secondary (specifically including FSS) would have “licensing priority vis-à-vis any third service allocated domestically or internationally in the band.”). Section 25.202(a)(1) of the Commission’s rules also plainly states that the 28 GHz band is “available for use by the Fixed-Satellite Service.” 47 C.F.R. § 25.202(a)(1). The only qualification (other than qualifications in the Table of Frequency Allocations not relevant here) is the notation (at note 2) that “FSS is secondary to LMDS in this band.” 47 C.F.R. § 25.202(a)(1) n.2.

<sup>8</sup> The larger the geographic area of the exclusive terrestrial license, the more likely it is that there will be large areas that are unserved, particularly if the Commission relies on population-based performance requirements. Counties are the largest areas the Commission should consider. The Commission should reject proposals, such as Nextlink’s recent filing advocating Partial Economic Area licenses, for larger license areas that would further facilitate long term warehousing of spectrum that can and should be used productively in the public interest. *See* Letter from Michele Farquhar, Counsel to Nextlink Wireless, LLC and XO Communications, LLC to Marlene Dortch, GN Docket No. 14-177, *et al.* at 1 (filed June 8, 2016) (“Nextlink urged the Commission to maintain existing Basic Trading Areas (‘BTAs’) for 28 GHz licenses, or at a minimum to consider an alternative licensing scheme that involves geographic areas larger than individual counties.”).

<sup>9</sup> For this reason O3b proposed that the Commission adopt a site licensing framework for the 28 GHz band. *See* O3b Comments at 20-28.

<sup>10</sup> *See* Letter from Scott Bergmann, Vice President, CTIA, to Marlene H. Dortch, GN Docket No. 14-177, *et al.* at 2 (filed May 24, 2016) CTIA anticipates that millimeter wave spectrum will be used primarily for adding capacity and high-speed data, as opposed to traditional “macro” mobile broadband networks characterized by seamless buildout and broad coverage. If the Commission does adopt the performance requirements that would allow a licensee to protect an entire county with limited buildout, the 40% threshold proposed in the NPRM should be the bare minimum considered. *See* NPRM ¶ 213.

“Keep what you use” rules will partially mitigate the damage of adopting inappropriately large license areas in the first case.<sup>11</sup> A licensee that is providing service to three or ten or thirty percent of a county at the end of term should keep those areas. Unserved areas should be relinquished, and the Commission should make those areas available to anyone (including the former licensee) who later proposes to put that spectrum to productive use for an authorized service, on a first-come/site licensed basis. This is particularly the case with respect to rural areas and other areas not covered by terrestrial links, which satellite operators already serve productively using the 28 GHz band.

UMFU proponents also argue that traditional population based performance requirements are inappropriate given the small areas in which 5G will be deployed. But they argue that they should be allowed to exclude others, including FSS operators, from using fallow spectrum in the large portions of license areas in which 5G will not be deployed. Nextlink Wireless argues that LMDS operators who receive free upgrades to UMFU licenses should be able to keep vast BTA (or PEA) license areas in perpetuity by making a single “installation” in the license area.<sup>12</sup> T-Mobile is even more direct in advocating warehousing over sharing: it argues that an UMFU licensee should be allowed to retain its license and exclude FSS operations whether the UMFU licensee uses the spectrum or not by paying a “warehousing fee.”<sup>13</sup> The Commission must reject these and other proposals for wide scale warehousing out of hand. Performance requirements should encourage rapid and efficient deployment of services, not long term and inefficient preclusion of service. Particularly given the enormous investments in service FSS operators have made to use the 28 GHz band, performance requirements should require and encourage UMFU licensees to facilitate ongoing FSS use and should penalize inefficient preclusion of FSS access.<sup>14</sup>

*The Commission Cannot Ignore the Substantial Reliance Interests of FSS Operators.* In 1996 the Commission decided to treat FSS as secondary to LMDS, but stated clearly and directly that going forward FSS would have “licensing priority” over all other services.<sup>15</sup> Relying on that status, FSS operators have invested many billions of dollars in developing and deploying new communications networks to support the domestic and global broadband services. In authorizing those systems, the Commission has reaffirmed repeatedly that operations are authorized as

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<sup>11</sup> Even in the context of the bands allocated to mobile with the best terrestrial propagation for large, seamless coverage areas, the Commission has acknowledged the need to make smaller license areas available to meet the requirements of the Communications Act’s anti-warehousing/intensive use/rural service policies. *See, e.g., Service Rules for the 698-746, 747-762 and 777-792 MHz Bands, et al.*, Second Report and Order, WT Docket No. 06-150, *et al.*, FCC 07-132 ¶ 156 (2007) (“[O]ur ‘keep-what-you-use’ rules provide additional methods for making smaller license areas available, thus promoting access to spectrum and the provision of service, especially in rural areas. This rule ensures that others are given an opportunity to acquire spectrum that is not adequately built out and provide services to those who reside in those areas. In this way, our rules are pro-competitive and help ensure service to communities that might otherwise not receive service.”).

<sup>12</sup> *See* Letter from Michele Farquhar to Marlene H. Dortch, GN Docket No. 14-177, *et al.* at 6 (filed June 21, 2016).

<sup>13</sup> *See* Letter from Steve B. Sharkey to Marlene H. Dortch, GN Docket No. 14-177, *et al.* at 7 (filed June 20, 2016).

<sup>14</sup> Among other measures, O3b has proposed that UMFU licensees that voluntarily accommodate FSS earth stations within their license areas should receive some credit towards their performance requirements. This is a simple and logical market-based incentive that will encourage efficient sharing.

<sup>15</sup> *See fn. 7, supra.*

*secondary to LDMS.*<sup>16</sup> As the Commission knows, those systems cannot now be altered to adapt to a reversal of policy.<sup>17</sup> The NPRM nonetheless proposes this change rules that reverse two decades of clear policy,<sup>18</sup> based on no more than an assertion that “investments satellite operators have made . . . were made with knowledge of their secondary status.”<sup>19</sup> That statement glosses over the distinction between a general secondary status, and a status that is secondary only to a specific service and is expressly *not* secondary to all other services. The Commission must recognize and account for the impact of this major policy reversal on FSS operators that have relied on the existing policy.

*Conclusion.* O3b believes that more tailored performance requirements will promote sharing in a way that maximizes opportunities for growth and innovation of both FSS and future UMFU services. O3b:

- Supports the Commission’s proposal that a UMFU licensee must provide reliable signal coverage and offer service to at least 40% of the population in each county-based license area by the end of the initial license term,<sup>20</sup> and urges the Commission do adopt performance milestones of 20% population coverage by the end of the fourth year of the license term and 30% population coverage by the end of the seventh year of the license term.<sup>21</sup>
- Urges the Commission to require UMFU licensees to permit new FSS earth stations to be sited and treated as co-primary in areas that are unserved at the end of the initial license term. An area would be “unserved” with respect to a proposed FSS earth station if the earth station would not cause harmful interference to existing UMFU operations.
- Proposes that the Commission consider offering build-out credit to a UMFU licensee that has a fully licensed co-primary FSS earth station operating within its UMFU license area.

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<sup>16</sup> See, e.g., O3b FSS Authorization No. SAT-LOI-20141029-00118 ¶ 8 (“Accordingly, [O3b] operations must be on an unprotected, non-harmful interference basis relative to LMDS in accordance with 47 C.F.R. § 2.105(c)(2)”). See also, 47 C.F.R. § 25.202(a)(1) n.2. (“FSS is secondary to LMDS in [the 28 GHz] band”).

<sup>17</sup> The harm to O3b and other FSS operators arises not from that secondary-to-LMDS status, but from the Commission’s proposed sudden reversal of policy to now treat FSS as secondary to additional services, and to eliminate its licensing priority over those services.

<sup>18</sup> The NPRM itself describes FSS’ current status as “secondary to LMDS”. See NPRM at ¶ 27 (“For the 28 GHz band, the U.S. Table of Frequency Allocations includes a co-primary Fixed Satellite Service (FSS) Earth-to-space allocation, but section 25.202 of the Commission’s rules provides that FSS is secondary to LMDS in that band”; see also NPRM ¶ 31 (“Under our current rules, FSS use of this band is secondary to LMDS”).

<sup>19</sup> *Id.* at ¶ 31.

<sup>20</sup> *Id.* at ¶¶ 207, 213.

<sup>21</sup> Cf. 47 C.F.R § 27.13 and §27.14(q) (requiring AWS-4 licensees to cover 40% of the population (representing more than half of the ultimate 70% performance milestone) within four years and 70% within seven years). If UMFU licensees are given until the end of license term to reach the final performance requirement, interim milestones at four and seven years are appropriate to prevent long term warehousing.

Given the propagation characteristics of the 28 GHz band, there is no reason to allow any licensee to permanently block otherwise technically conforming uses in areas the licensee itself does not serve. The rationale for large exclusive license areas is not that UMFU licensees will eventually deploy in all areas. It is that 5G service is so inchoate that the licensees (and prospective licensees) do not yet know how or where they will use the spectrum. O3b disagrees that this is a good reason to limit and essentially prohibit FSS use, which is already operating productively and efficiently in the band.

The Commission has long recognized the risk that granting one operator an exclusive license to deploy in a geographic area will lead to warehousing of spectrum. The NPRM acknowledges that the Commission has a statutory duty to promote “efficient and intensive” use of the spectrum and “prompt delivery of service to rural areas” through anti-warehousing rules.<sup>22</sup> O3b agrees with the NPRM’s tentative conclusions that the Commission’s rules should facilitate sharing, that exclusive geographic licenses should be subject to “use or share” obligations, and that licensees that do not meet performance requirements should forfeit those licenses.<sup>23</sup> But the choice of large exclusive license areas for limited-coverage-area technology means that performance requirements must be more carefully drawn and enforced to achieve their statutory purposes of promoting intensive use of the spectrum and service to rural areas.

Respectfully submitted,

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<sup>22</sup> See NPRM ¶ 203. Section 309(j)(3)(D) of the Act requires the Commission to adopt competitive bidding rules that promote, *inter alia*, “efficient and intensive use of the electromagnetic spectrum.” 47 U.S.C. § 309(j)(3)(D). In doing so, the Commission must “include performance requirements, such as appropriate deadlines and penalties for performance failures, to ensure prompt delivery of service to rural areas, to prevent stockpiling or warehousing of spectrum by licensees or permittees, and to promote investment in and rapid deployment of new technologies and services.” 47 U.S.C. § 309(j)(4)(B).

<sup>23</sup> See NPRM ¶¶ 212-218. O3b agrees with the NPRM’s tentative conclusions that the Commission’s rules should facilitate sharing, but the NPRM’s proposed “use or share” construct – allowing non-UMFU use on a non-interfering basis – would be ineffective. Locations of FSS earth stations are driven by system design, long range planning and customer requirements. *Id.* ¶ 216. They are integral components of complex systems and cannot be built in places where they may have to cease operations.